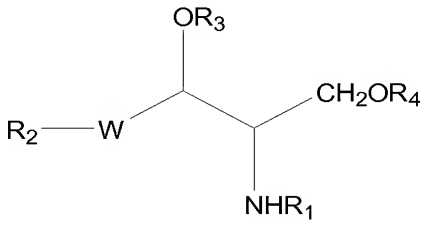
Listing of Claims:

1-60 (Cancelled).

61 (Currently Amended). A method for transfecting a cell with a nucleic acid molecule comprising contacting said cell with a sphingoid-polyalkylamine conjugate together with said nucleic acid molecule, wherein said sphingoid-polyalkylamine conjugate ~~comprises a sphingoid backbone carrying, via a carbamoyl bond, at least one polyalkylamine~~ has the following formula (I):



(I)

wherein

R_1 represents a hydrogen, a branched or linear alkyl, aryl, alkylamine, or a group $-C(O)R_5$;

R_2 and R_5 represent, independently, a branched or linear C_{10}-C_{24} alkyl, alkenyl or polyenyl group;

R_3 is hydrogen or a group $-C(O)-NR_6R_7$, in which R_6 and R_7, being the same or different for R_3 and R_4, represent, independently, a hydrogen, or a saturated or unsaturated branched or linear polyalkylamine, wherein one or more amine units in said polyalkylamine may be a quaternary ammonium, and R_4 is, independently, a group $-C(O)-NR_6R_7$, wherein at least one

of **R_3** and /or **R_4** comprises said polyalkylamine; or **R_3** and **R_4** form, together with the oxygen atoms to which they are bound, a heterocyclic ring comprising $-C(O)-NR_9-[R_8-NR_9]_m-C(O)-$, in which **$R_8$** represents a saturated or unsaturated C_1-C_4 alkyl and **R_9** represents a hydrogen or a polyalkylamine of the formula $-[R_8-NR_9]_n-$, wherein said **R_9** or each alkylamine unit $-R_8NR_9$ may be the same or different in said polyalkylamine; and **n** and **m** represent, independently, an integer from 1 to 10; and

W represents a $-CH=CH-$, $-CH_2-CH(OH)-$ or $-CH_2-CH_2-$ group.

62 (Previously Presented). The method of Claim 61, wherein said nucleic acid is associated with said sphingoid-polyalkylamine conjugate.

63 (Previously Presented). The method of Claim 61, wherein said nucleic acid molecule is a plasmid DNA.

64 (Previously Presented). The method of Claim 61, wherein said nucleic acid molecule is a small interference RNA (siRNA).

65 (Previously Presented). The method of Claim 61, wherein said nucleic acid molecule is an oligodeoxynucleotide (ODN).

66 (Previously Presented). The method of Claim 62, wherein said sphingoid-polyalkylamine conjugate forms lipid assemblies.

67 (Previously Presented). The method of Claim 66, wherein said sphingoid-polyalkylamine conjugate forms vesicles, micelles or a mixture of same.

68 (Previously Presented). The method Claim 61, wherein the sphingoid backbone is selected from ceramide, dihydroceramide, phytoceramide, dihydrophytoceramide, ceramine, dihydroceramine, phytoceramine, dihydrophytoceramine.

69 (Previously Presented). The method of Claim 61, wherein said sphingoid backbone is a ceramide.

70 (Previously Presented). The method of Claim 61, wherein said one or more polyalkylamine chains are independently selected from spermine, spermidine, a polyalkylamine analog or a combination thereof.

71 (Cancelled).

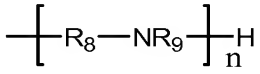
72 (Currently Amended). The method of Claim ~~71~~61, wherein R_1 represents a $-C(O)R_5$ group, R_5 being as defined.

73 (Currently Amended). The method of Claim ~~71~~61, wherein said R_2 and R_5 represent, independently, a linear or branched C_{12}-C_{18} alkyl or alkenyl chain.

74 (Currently Amended). The method of Claim ~~71~~61, wherein W represents -CH=CH-.

75 (Currently Amended). The method of Claim ~~71~~61, wherein **R_1** represents a $-C(O)R_5$ group; **R_5** represents a C_{12}-C_{18} linear or branched alkyl or alkenyl; **W** represents -CH=CH-; **R_2**

represents a C_{12}-C_{18} linear or branched alkyl or alkenyl; **R_3** and **R_4** represent, independently, a group -C(O)-NR_6R_7, and **R_3** may also represent a hydrogen, wherein **R_6** and **R_7** represent, independently, a hydrogen or a polyalkylamine having the general formula (II):



wherein

R_8 represent a C_1-C_4 alkyl;

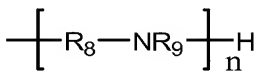
R_9 represents a hydrogen or a polyalkylamine branch of formula (II), said R_8 and R_9 may be the same or different for each alkylamine unit, -R_8NR_9-, in the polyalkylamine of formula (II); and

n represents an integer from 3 to 6.

76 (Currently Amended). The method of Claim ~~71~~61, wherein R_3 is a hydrogen atom.

77 (Currently Amended). The method of Claim ~~71~~61, wherein both R_3 and R_4 represent the same or different polyalkylamine.

78 (Currently Amended). The method of Claim ~~71~~61, wherein **R_1** represents a -C(O)R_5 group; **R_5** represents a C_{12}-C_{18} linear or branched alkyl or alkenyl; **W** represents -CH=CH-; **R_2** represents a C_{12}-C_{18} linear or branched alkyl or alkenyl; **R_3** and **R_4** represent, independently, a group -C(O)-NR_6R_7, wherein **R_6** and **R_7** represent, independently, an alkylamine or a polyalkylamine having the general formula (II):



wherein

R_8 represent a C_1-C_4 alkyl;

R_9 represents a hydrogen or a polyalkylamine branch of formula (II), said R_8 and R_9 may be the same or different for each alkylamine unit, $-R_8NR_9-$, in the polyalkylamine of formula (II); and

n represents an integer from 3 to 6.

79 (Currently Amended). The method of Claim ~~71~~61, wherein **R_1** represents a $-C(O)R_5$ group; **R_5** represents a C_{12}-C_{18} linear or branched alkyl or alkenyl; **W** represents -CH=CH-; **R_2** represents a C_{12}-C_{18} linear or branched alkyl or alkenyl; **R_3** and **R_4** form, together with the oxygen atoms to which they are bonded, a heterocyclic ring comprising $-C(O)-[NH-R_8]_n-NH-C(O)-$,

wherein

R_8 represents a C_1-C_4 alkyl, wherein for each alkylamine unit $-NH-R_8-$, said R_8 may be the same or different; and

n represents an integer from 3 to 6.

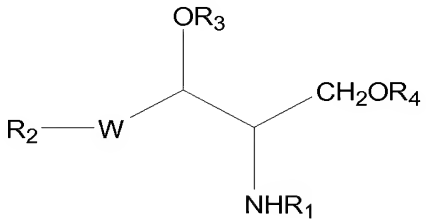
80 (Currently Amended). The method of Claim ~~71~~61, wherein said R_8 is a C_3-C_4 alkyl.

81 (Currently Amended). The method of Claim ~~71~~61, wherein said sphingoid-polyalkylamine conjugate is N-palmitoyl D-erythro sphingosyl-1-carbamoyl spermine (CCS).

82 (Previously Presented). The method of Claim 61, wherein said sphingoid-polyalkylamine conjugate associated with the nucleic acid molecule is also associated with a targeting substance.

83 (Canceled).

84 (Withdrawn/Currently Amended). A method for the treatment of a disease or disorder, the method comprises providing a subject in need of said treatment an amount of a sphingoid-polyalkylamine conjugate associated with a nucleic acid molecule, wherein ~~said sphingoid-polyalkylamine conjugate comprises a sphingoid backbone carrying, via a carbamoyl bond, at least one polyalkylamine and~~ the amount of said nucleic acid molecule is effective to achieve a desired biochemical effect once in said target cell and wherein said sphingoid-polyalkylamine conjugate has the following formula (I):



(I)

wherein

R_1 represents a hydrogen, a branched or linear alkyl, aryl, alkylamine, or a group $-C(O)R_5$;

R_2 and **R_5** represent, independently, a branched or linear C_{10}-C_{24} alkyl, alkenyl or polyenyl group;

R_3 is hydrogen or a group $-C(O)-NR_6R_7$, in which **R_6** and **R_7**, being the same or different for R_3 and R_4, represent, independently, a hydrogen, or a saturated or unsaturated branched or linear polyalkylamine, wherein one or more amine units in said polyalkylamine may be a quaternary ammonium, and **R_4** is, independently, a group $-C(O)-NR_6R_7$, wherein at least one of **R_3** and /or **R_4** comprises said polyalkylamine; or **R_3** and **R_4** form, together with the oxygen atoms to which they are bound, a heterocyclic ring comprising $-C(O)-NR_9-[R_8-NR_9]_m-C(O)-$, in which **$R_8$** represents a saturated or unsaturated C_1-C_4 alkyl and **R_9** represents a hydrogen or a polyalkylamine of the formula $-[R_8-NR_9]_n-$, wherein said **R_9** or each alkylamine unit $-R_8NR_9$ may be the same or different in said polyalkylamine; and **n** and **m** represent, independently, an integer from 1 to 10; and

W represents a $-CH=CH-$, $-CH_2-CH(OH)-$ or $-CH_2-CH_2-$ group.

85 (Withdrawn). The method of Claim 84, wherein said sphingoid backbone is ceramide.

86 (Cancelled).

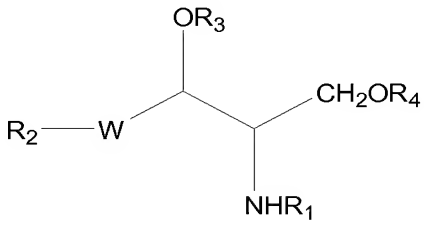
87 (Withdrawn). The method of Claim 84, wherein said sphingoid-polyalkylamine conjugate is N-palmitoyl D-erythro sphingosyl carbamoyl-spermine (CCS).

88 (Withdrawn/Currently Amended). A transfection composition comprising:

a sphingoid-polyalkylamine conjugate comprising a sphingoid backbone carrying, via a carbamoyl bond, at least one polyalkylamine; and

a nucleic acid molecule,

wherein said sphingoid-polyalkylamine conjugate has the following formula (I):



(I)

wherein

R_1 represents a hydrogen, a branched or linear alkyl, aryl, alkylamine, or a group $-C(O)R_5$;

R_2 and **R_5** represent, independently, a branched or linear C_{10}-C_{24} alkyl, alkenyl or polyenyl group;

R_3 is hydrogen or a group $-C(O)-NR_6R_7$, in which **R_6** and **R_7**, being the same or different for R_3 and R_4, represent, independently, a hydrogen, or a saturated or unsaturated branched or linear polyalkylamine, wherein one or more amine units in said polyalkylamine may be a quaternary ammonium, and **R_4** is, independently, a group $-C(O)-NR_6R_7$, wherein at least one of **R_3** and /or **R_4** comprises said polyalkylamine; or **R_3** and **R_4** form, together with the oxygen atoms to which they are bound, a heterocyclic ring comprising $-C(O)-NR_9-[R_8-NR_9]_m-C(O)-$, in which

R_8 represents a saturated or unsaturated C_1-C_4 alkyl and **R_9** represents a hydrogen or a polyalkylamine of the formula $-[R_8-NR_9]_n-$, wherein said **R_9** or each alkylamine unit $-R_8NR_9$ may be the same or different in said polyalkylamine; and **n** and **m** represent, independently, an integer from 1 to 10; and

W represents a $-CH=CH-$, $-CH_2-CH(OH)-$ or $-CH_2-CH_2-$ group.

89 (Withdrawn). The transfection composition of Claim 88, comprising a physiologically acceptable carrier.

90 (Withdrawn). The transfection composition of Claim 88, wherein said nucleic acid molecule has, at a physiological pH, a net negative dipole moment, at least one area carrying a negative charge or a net negative charge.

91 (Withdrawn). The transfection composition of Claim 88, wherein said nucleic acid molecule is a plasmid DNA.

92 (Withdrawn). The transfection composition of Claim 88, wherein said nucleic acid molecule is a small interference RNA (siRNA).

93 (Withdrawn). The transfection composition of Claim 88, wherein said nucleic acid molecule is an oligodeoxynucleotide (ODN).

94 (Withdrawn). The transfection composition of Claim 88, wherein the sphingoid-polyalkylamine conjugate forms lipid assemblies.

95 (Withdrawn). The composition of Claim 94, wherein the sphingoid-polyalkylamine conjugate forms vesicles and/or micelles.

96 (Withdrawn). The transfection composition of Claim 88, wherein the sphingoid backbone is selected from ceramide, dihydroceramide, phytoceramide, dihydrophytoceramide, ceramine, dihydroceramine, phytoceramine, dihydrophytoceramine.

97 (Withdrawn). The transfection composition of Claim 94, wherein said sphingoid is a ceramide.

98 (Withdrawn). The transfection composition of Claim 88, wherein said one or more polyalkylamine chains are independently selected from spermine, spermidine, a polyalkylamine analog or a combination thereof.

99 (Cancelled).

100 (Withdrawn). The transfection composition of Claim 88, wherein said sphingoid- polyalkylamine conjugate is N-palmitoyl D-erythro sphingosyl carbamoyl-spermine (CCS).

101-106 (Cancelled).